

# **Non -Traumatic Soft Tissue MSDs, 1990-1997**

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Work-related musculoskeletal disorders include both sudden and gradual onset conditions affecting the bones, muscles, tendons, nerves and supporting structures. A subset of these disorders includes non-traumatic soft tissue musculoskeletal disorders (NTST-MSDs). Work-related risk factors for these disorders include forceful, repetitive exertions, awkward or sustained postures, vibration, contact stress and cold temperatures. They are often found in jobs characterized by repetitive work or manual materials handling. Table 1 presents the coding scheme that was used to extract relevant worker's compensation data from the Washington State Fund and Washington Self-Insured employers, using the LINIIS and MIPS database systems at the Department of Labor and Industries. This sub-category of WMSDs excludes those conditions due to falls, caught or struck, motor vehicle related injuries. It also excludes MSDs of the bones (fractures, amputations, etc). MIPS includes only State Fund claims with medical bills that have ICD-9 codes. No such data is available for Self-Insured claims. Data extraction and analysis methods are described more fully in a recent SHARP technical report (40-2-1999).

Self-Insured employers (approximately 400) are composed of the state's largest employers with approximately 1/3 of the state's workforce. Only Self-Insured claims with time loss of four or more days are coded in the LINIIS system. These claims are only submitted once the claim has been closed. There is often substantial delay, particularly for the more recent NTST-MSD claims. Thus, it is not possible to directly compare the State Fund and Self-Insured experience. Self-Insured work hours were not available for 1990-1991, thereby limiting claims incidence rates to 1992-1997

Between 1990-1997, there were 426,806 accepted State Fund workers compensation claims for non-traumatic soft tissue musculoskeletal disorders of the neck, upper extremity, back and lower extremity. This represents 32% of all State Fund accepted claims. The cost of these claims to the State Fund was

more than \$2.3 billion dollars (46.6% of all State Fund claims costs) and resulted in more than 20 million lost workdays (53.8% of all compensable lost days resulting in 4+ lost workdays) (Table 2).. The overall rate for these disorders was 432.6 per 10,000 fulltime equivalent employees. The highest rate was for back disorders (194.0), followed by the neck and upper extremity (169.9) and then the lower extremity (55.1). Approximately 36% of these claims were compensable (lost time of 4 or more days) compared to 24% for all claims. While the overall claims rate has been decreasing about 4.6% per year since 1990 (28.2% decrease between 1990 and 1997), the rate for NTST-MSDs has averaged about 3.5% per year. While the decrease for NTST back disorders has been similar to the overall claims decrease, for neck and upper extremity, the decrease has been much less (5.8% between 1990-1997, average of 2.7%) and for the lower extremity (12.7% between 1990-1997), Table 3.

Based on the ***Prevention Index*** (average of claim frequency rank and claims rate rank), nursing homes were at greatest risk for all Non-Traumatic Soft Tissue MSDs [NTST-MSDs], followed by wood frame building construction, wood products manufacturing, roofing and wallboard installation (Table 4). Nursing homes also had the highest risk for neck and upper extremity as well as back NTST-MSDs, Tables 5-6. Meat dealers, fruit and vegetable packing as well as construction industries were in the top 25 category for upper extremity. For NTST Back disorders, industries characterized by heavy manual handling predominated the list. Roofing, wood frame building construction, and logging had the highest prevention index for lower extremity NTST-MSDs, Table 7. Temporary help-assembly is at high risk for all body areas.

Among the Self-Insured employers, there were 89,299 compensable NTST-MSD claims resulting in 4 or more lost days between 1990-1997, Table 8, resulting in more than \$417 million in claims costs and almost 5 million lost workdays. This is most likely an underestimate because compensable claims do not enter the LINIIS database until they have been closed. NTST-MSDs represents 59% of all compensable claims. The average yearly claims rate (1992-1997) was 208.2 per 10,000 FTEs. The highest rate was for

NTST back disorders (86.9), followed by neck and upper extremity (77.2) and then 28.1 for lower extremity.

Based on the ***Prevention Index***, Parcel package delivery was at the top of the list for all NTST disorders, upper extremity, back and lower extremity. Bus companies and airline ground crews were also at high risk. Temporary help-administrative staff seemed to have extremely high rates compared to the rest of the Self-Insured, but this may be an artifact of reporting hours.

**Table 1. Non-Traumatic Soft Tissue Disorders. Coding Scheme for State Fund, 1990-1997**

NOTE: INJURY NATURE HAS TO BE COMBINED WITH INJURY TYPE AND BODYPART

**Injury NATURE Code and Description (z16.2 codes)**

160	Contusion
190	Dislocation and herniated discs, pinched nerve
260	Inflammation or Irritation of Joints and Muscles
310	Sprains, Strains
400	Multiple Injuries (neck/back)
560	Nervous System
562	Bell's Palsy and other diseases of the nerves and peripheral ganglia (carpal tunnel syndrome)
580	Symptoms and ill-defined Conditions
995	Other Injury, Not Elsewhere Classified (these tend to be musculoskeletal due to lifting, rep motion)
999	Unclassified (these tend to be musculoskeletal due to lifting, rep motion)

**Selected ICD-9 Codes**

724	Other and unspecified disorders of the back
724.2	Lumbago
724.3	Sciatica
724.5	Backache, unspecified
722.10	Lumbar intervertebral disc without myelopathy
722.73	Intervertebral disc disorder with myelopathy, lumbar region
354.0	Carpal tunnel syndrome
726.31	Medial epicondylitis
726.32	Lateral epicondylitis
726.1	Rotator cuff syndrome
726.10	Disorders of bursae and tendons in shoulder region, unspecified
727.61	Rupture of tendon, non-traumatic: complete rupture of rotator cuff
840.4	Sprain/strain of shoulder and upper arm: rotator cuff
64721	Neuroplasty and/or transposition: median nerve at carpal tunnel
24350	Fasciotomy, lateral or medial (eg, "tennis elbow" or epicondylitis)
23410	Repair of ruptured supraspinatus tendon (rotator cuff) or musculotendinous cuff; acute
23412	Repair of ruptured supraspinatus tendon (rotator cuff) or musculotendinous cuff; chronic
23415	Coracoacromial ligament release, with or w/o acromioplasty, for chronic ruptured supraspinatus tendon (rotator cuff)
23420	Repair of complete shoulder (rotator) cuff avulsion, chronic

**TYPES: Code and Description (Z16.2)**

**Rubbed or Abraded by:**

81	leaning, kneeling, sitting (back, lower extremity only)
82	by objects being handled (not vibrating)
83	by vibrating objects
85	by repetition of pressure
86	repetitive motion
100	Bodily reaction (strain, sprain, rupture or other internal injuries resulting from assumption of unnatural position or involuntary motion such as efforts to recover balance)
120	Overexertion
121	In lifting objects
122	In pulling or pushing objects

- 123 In wielding or throwing objects
- 124 In carrying objects
- 129 overexertion, not elsewhere classified

899-999 Unknown (note these are primarily strain, muscle soreness, pain with lifting etc)

**Coding Scheme for Self-Insured Compensable (lost time) only, 1990-1997**

NOTE: INJURY NATURE HAS TO BE COMBINED WITH INJURY TYPE AND BODYPART

Same as for State Fund except no ICD-9s are included because they are not available in the L&I databases

**Table 2. Non-Traumatic Soft Tissue Musculoskeletal Disorders, State Fund 1990-1997**

	<b>All NTSDs</b>	<b>Neck &amp; Upper Extremity</b>	<b>Back</b>	<b>Lower Extremity</b>
Total Number	426,806	167,614	191,416	54,322
Total 8 year costs	\$2,331,400,000	\$1,027,600,000	\$1,284,200,000	\$25,487,000
Total lost days	20,315,137	9,327,313	11,317,323	1,922,288
Percent of all accepted claims (1,332,703)	32.0%	12.6%	14.4%	4.1%
Average number of claims per year	53,351	20,952	23,927	6,790
Median age	34	35	34	34
% Female	34.3%	41.5%	29.2%	27.4%
Average no. claims with time loss per year	19,066	7,181	9,630	2,492
% of claims	35.7%	33.7%	40.3%	36.7%
Average time loss days per time loss claim	133	165	147	96
Median time loss days per time loss claim	22	40	18	21
Average cost per claim	\$5,462	\$6,131	\$6,709	\$4,692
Median cost per claim	\$405	\$455	\$488	\$282
Average yearly claim rate per 10,000 FTEs	432.6	169.9	194.0	55.1

**Table 3. Non-Traumatic Soft Tissue Musculoskeletal Disorders, State Fund, 1990-1997.  
Rates per 10,000 FTEs**

Year	All Claims	% decrease	All NTST	% decrease	Neck & Upper Extremity	% decrease	Back	% decrease	Lower Extremity	% decrease
90	1617		486.3		186.0		226.3		59.0	
91	1512	6.5%	473.0	2.7%	184.1	1.0%	219.6	3.0%	55.4	6.1%
92	1452	4.0%	465.3	1.6%	184.4	-0.2%	212.7	3.1%	55.7	-0.5%
93	1386	4.5%	452.8	2.7%	184.8	-0.2%	202.6	4.7%	57.2	-2.7%
94	1323	4.5%	434.2	4.1%	178.8	3.2%	193.2	4.6%	55.7	2.6%
95	1242	6.1%	401.9	7.4%	173.1	3.2%	177.0	8.4%	54.3	2.5%
96	1188	4.3%	388.2	3.4%	157.3	9.1%	169.0	4.5%	52.7	2.9%
97	1161	2.3%	378.5	2.5%	152.7	2.9%	163.0	3.6%	51.5	2.3%
<b>Average</b>	<b>1360</b>	<b>4.6%</b>	<b>435.0</b>	<b>3.5%</b>	<b>175.2</b>	<b>2.7%</b>	<b>195.4</b>	<b>4.6%</b>	<b>55.2</b>	<b>1.9%</b>
%decrease	28.2%		22.2%		5.8%		28.0%		12.7%	
%all claims			32.0%		12.9%		14.4%		4.1%	

**Table 4. State Fund Prevention Index (PI) Ranking for All Non-Traumatic Soft Tissue Musculoskeletal Disorders, 1990-1997**

PI Rank	WIC	Hours	Count	Rate	Rate Ratio	Count Rank	Rate Rank
1	Nursing homes	286,409,807	22,096	1,543	3.6	2	27
2	Wood frame building construction	172,646,830	11,397	1,320	3.1	3	42
3	Wood products manufacturing	101,798,233	6,537	1,284	3.0	9	45
4	Roofing	26,670,739	3,144	2,358	5.5	41	14
5	Wallboard installation	17,993,401	2,309	2,566	5.9	51	9
6	Building construction NOC	76,590,337	4,901	1,280	3.0	20	47
7	Garbage collection	28,863,740	2,455	1,701	3.9	49	21
8	Moving companies	20,928,843	2,125	2,031	4.7	55	16
9	Temp Help-assembly	16,632,833	2,034	2,446	5.7	60	12
10	Sawmills	41,518,149	3,012	1,451	3.4	42	32
11	Landscaping	63,910,163	4,082	1,277	3.0	29	48
12	Plumbing	8,408,902	5,090	1,211	2.8	19	59
13	Concrete construction	38,266,571	2,588	1,353	3.1	46	37
14	Airlines ground crew	22,166,922	1,675	1,511	3.5	67	29
15	Beer distributors	30,165,965	2,034	1,349	3.1	60	38
16	HVAC systems	75,082,294	4,268	1,137	2.6	26	73
17	Parcel package delivery	113,142,041	5,872	1,038	2.4	12	89
18	Insulation installation	21,477,126	1,622	1,510	3.5	72	30
19	Foundries NOC	21,790,870	1,596	1,465	3.4	73	31
20	Floor covering installation	17,791,107	1,463	1,645	3.8	79	26
21	Meat dealers wholesale	72,375,482	4,094	1,131	2.6	28	77
22	Logging	33,592,703	2,106	1,254	2.9	56	53
23	State health care facilities	72,258,008	3,841	1063	2.5	32	81
24	Trucking NOC	144,627,247	6,612	914	2.1	8	109
25	Meat products manufacturing	18,527,867	1,321	1,426	3.3	86	33
	<b>Total Top 25 PI</b>	108,274					
	<b>TOTAL</b>	<b>426,808</b>					
	<b>Top 25 percent of total</b>	<b>433</b>					
		25.4%					
	<b>Highest rate</b>						
	Reinforcing steel installation	1170742	234	3,997	9.2	208	1
	<b>Highest Count</b>						
	Restaurants	1,398,983,110	26,459	378	0.9	1	244

NOTE: Claims Rate per 10,000 FTEs/Year 300 industrial classes. NOC: not otherwise classified. (Exclude WIC with less than 100 FTEs per year or less than 10 claims/year)

**Table 5. State Fund Prevention Index (PI) Ranking for Neck and Upper Extremity Non-Traumatic Soft Tissue Musculoskeletal Disorders, 1990-1997**

PI Rank	WIC	Hours	Count	Claims Rate	Rate Ratio	Count Rank	Rate Rank
1	Nursing homes	286,409,807	7,966	557	3.3	2	34
2	Wood products manufacturing	101,798,233	2,867	563	3.3	8	33
3	Meat dealers wholesale	72,375,482	2,140	591	3.5	16	29
4	Wallboard installation	17,993,401	969	1077	6.3	48	8
5	Roofing	26,670,739	1,110	832	4.9	44	13
6	Wood frame building construction	172,646,830	4,052	469	2.8	4	53
7	Temp Help-assembly	16,632,833	868	1044	6.1	52	9
8	Sawmills	41,518,149	1,273	613	3.6	39	26
9	State health care facilities	72,258,008	1,690	468	2.8	25	54
10	Garbage collection	28,863,740	840	582	3.4	55	30
11	Building construction NOC	76,590,337	1,695	443	2.6	23	62
12	Meat products manufacturing	18,527,857	642	693	4.1	68	19
13	Landscaping	63,910,163	1,456	457	2.7	30	57
14	Fruit & vegetable packing	150,148,437	3,024	403	2.4	7	81
15	Moving companies	20,928,843	662	633	3.7	67	24
16	Concrete construction	38,266,571	953	498	2.9	50	46
17	Plumbing	8,408,902	1,765	420	2.5	22	74
18	Insulation installation	21,477,126	637	593	3.5	70	28
19	Airlines ground crew	22,166,922	627	566	3.3	71	32
20	Foundries NOC	21,790,870	591	542	3.2	76	35
21	Plastic products manufacturing	80,313,914	1,592	396	2.3	28	85
22	Textile manufacturing	39,206,398	842	430	2.5	54	67
23	Aluminum product manufacturing	121815810	2,224	365	2.1	15	107
24	Boilermaking	36,874,056	804	436	2.6	58	65
25	Logging	33,592,703	737	439	2.6	60	64
<b>Total Top 25 PI</b>			42,026				
<b>TOTAL</b>			<b>167,614</b>	<b>170</b>			
<b>Top 25 percent of total</b>			25.1%				
<b>Highest Rate</b>							
Temp help-vehicle operations		856,597	76	1774	10.4	214	1
<b>Highest Count</b>							
Restaurants		1,398,983,110	10,572	151	0.9	1	225

NOTE: Claims Rate per 10,000 FTEs/Year 300 industrial classes. NOC: not otherwise classified. (Exclude WIC with less than 100 FTEs per year or less than 10 claims/year)



**Table 6. State Fund Prevention Index (PI) Ranking for Back Non-Traumatic Soft Tissue Musculoskeletal Disorders, 1990-1997**

PI Rank	WIC	Hours	Count	Claims Rate	Rate Ratio	Count Rank	Rate Rank
1	Nursing homes	286,409,807	11,900	831	4.3	1	23
2	Wood frame building construction	172,646,830	5,438	630	3.3	3	43
3	Roofing	26,670,739	1,471	1,103	5.7	37	14
4	Wallboard installation	17,993,401	1,079	1,199	6.2	52	7
5	Building construction NOC	76,590,337	2,312	604	3.1	18	50
6	Moving companies	20,928,843	1,037	991	5.1	54	17
7	Garbage collection	28,863,740	1,116	773	4.0	50	25
8	Beer distributors	30,165,965	1,151	763	3.9	49	27
9	Temp Help-assembly	16,632,833	860	1,034	5.3	62	15
10	Wood products manufacturing	101,798,233	2,786	547	2.8	10	67
11	Concrete construction	38,266,571	1,268	663	3.4	41	38
12	Landscaping	63,910,163	1,905	596	3.1	26	53
13	Plumbing	8,408,902	2,338	556	2.9	17	63
14	Parcel package delivery	113,142,041	2,954	522	2.7	8	73
15	Sawmills	41,518,149	1,262	608	3.1	42	47
16	HVAC systems	75,082,294	2,015	537	2.8	25	71
17	Floor covering installation	17,791,107	706	794	4.1	73	24
18	Foundries NOC	21,790,870	774	710	3.7	68	29
19	Masonry construction	18,503,871	650	703	3.6	79	30
20	Airlines ground crew	22,166,922	725	654	3.4	71	40
21	Warehouses NOC	51,035,192	1,324	519	2.7	39	75
22	Trucking NOC	144,627,247	3,247	421	2.2	7	108
23	Tire sales and services	43,554,869	1,183	543	2.8	48	70
24	Insulation installation	21,477,126	672	626	3.2	75	44
25	Boilermaking	36,874,056	1,024	555	2.9	55	64
	<b>Total Top 25 PI</b>	51,197					
	<b>TOTAL</b>	<b>191,416</b>					
	<b>Top 25 percent of total</b>	26.7%					
	<b>Highest Rate</b>						
	Entertainers & Dancers	249,575	33	2,644	13.6	266	1
	<b>Highest Count</b>						
	Nursing homes	286,409,807	11,900	831	4.3	1	23

NOTE: Claims Rate per 10,000 FTEs/Year 300 industrial classes. NOC: not otherwise classified. (Exclude WIC with less than 100 FTEs per year or less than 10 claims/year)

**Table 7. State Fund Prevention Index (PI) Ranking for Lower Extremity Non-Traumatic Soft Tissue Musculoskeletal Disorders, 1990-1997**

PI Rank	WIC	Hours	Count	Rate	Rate Ratio	Count Rank	Rate Rank
1	Roofing	26,670,739	476	357	6.5	27	8
2	Wood frame building construction	172,646,830	1,619	188	3.34	2	38
3	Logging	33,592,703	467	278	5.1	28	15
4	Building construction NOC	76,590,337	749	196	3.6	15	32
5	Plumbing	8,408,902	799	190	3.5	13	36
6	Garbage collection	28,863,740	389	270	4.9	40	16
7	HVAC systems	75,082,294	662	176	3.2	19	40
8	Actors & musicians	8,177,994	249	609	11.1	61	2
9	Moving companies	20,928,843	313	299	5.4	51	13
10	Landscaping	63,910,163	561	176	3.2	24	41
11	Floor covering installation	17,791,107	297	334	6.1	55	11
12	Electrical wiring	125,942,127	967	154	2.8	7	60
13	Parcel package delivery	113,142,041	848	150	2.7	9	66
14	Insulation installation	21,477,126	261	243	4.4	59	20
15	Painting	68,583,383	548	160	2.9	25	55
16	Sawmills	41,518,149	362	174	3.2	42	42
17	Trucking NOC	144,627,247	998	138	2.5	6	78
18	Wallboard installation	17,993,401	232	258	4.7	67	18
19	Fire fighters	33,392,086	314	188	3.4	50	37
20	Airlines ground crews	22,166,922	243	219	4.0	63	26
21	Temp Help-assembly	16,632,833	219	263	4.8	73	17
22	Law enforcement officers	41,887,686	343	164	3.0	47	50
23	Concrete construction	38,266,571	317	166	3.0	49	49
24	Interior finish carpentry	48,699,037	377	155	2.8	41	59
25	Underground utilities	34,367,879	279	162	2.9	56	53
	<b>Total Top 25 PI</b>	12,889					
	<b>TOTAL</b>	<b>54322</b>					
	<b>Top 25 percent of total</b>	<b>23.7%</b>					
	<b>Highest Rate</b>						
	Entertainers & Dancers	24,9575	73	5,850	106	158	1
	<b>Highest Count</b>						
	Restaurants	1,398,983,110	3,786	54	1.0	1	209

NOTE: Claims Rate per 10,000 FTEs/Year 300 industrial classes. NOC: not otherwise classified. (Exclude WIC with less than 100 FTEs per year or less than 10 claims/year)

**Table 8. SELF-Insured Compensable (Lost time) Non-Traumatic Soft Tissue Musculoskeletal Disorders, 1990-1997**

	<b>All NTSDs</b>	<b>Neck &amp; Upper Extremity</b>	<b>Back</b>	<b>Lower Extremity</b>
Total Number	89,299	32,681	37,918	11,759
Total 8 year costs	\$417,290,000	\$179,710,000	\$157,230,000	\$53,184,539
Total lost days	4,927,163	2,276,859	1,814,066	539,187
Percent of all lost time claims (151,871)	59.0%	21.5%	25.0%	7.7%
Median age	38	39	37	39
% Female	46.2%	55.3%	41.4%	35.2%
Average no. claims with time loss per year	11,162	4,085	4,740	1,470
Average time loss days per time loss claim	55	70	48	46
Median time loss days per time loss claim	11	17	9	13
Average cost per claim	\$4,673	\$5,499	\$4,147	\$4,523
Median cost per claim	\$622	\$993	\$412	\$919
Average yearly claim rate per 10,000 FTEs	208.2	77.2	86.9	28.1

**Table 9. SELF Insured Employers Prevention Index (PI) Ranking for Compensable (Lost Time)  
ALL Non-Traumatic Soft Tissue Musculoskeletal Disorders, 1992-1997**

PI Rank	WIC	Hours	Count	Rate	Rate Ratio	Count Rank	Rate Rank
1	Parcel package delivery	60,887,719	3,179	1,044	5.0	5	11
2	Bus companies	40,603,596	1,527	752	3.6	10	17
3	Airline ground crew	26,605,794	1,259	946	4.5	15	13
4	Trucking NOC	37,650,122	1,354	719	3.5	13	18
5	Airlines flight crews	14,223,375	761	1,070	5.1	23	10
6	Cities, all other employees NOC	77,328,322	2,134	552	2.7	7	26
7	Temp help-admin staff	2,034,084	406	3,992	19.2	33	1
8	Schools, all other employees NOC	161,013,987	4,023	500	2.4	4	30
9	Warehouses NOC	60,580,992	1,638	541	2.6	8	27
10	Wholesale stores NOC	33,246,968	967	582	2.8	21	24
11	Aluminum smelting	63,227,221	1,285	407	2.0	14	34
12	Fire fighters	26,830,788	694	517	2.5	25	28
13	Newspaper publishing	8,272,172	322	779	3.7	38	16
14	Janitorial services	16,304,647	459	563	2.7	31	25
15	Supermarkets	243,794,141	4,125	338	1.6	3	53
16	Ambulance services	4,018,167	221	1,100	5.3	49	9
17	Telephone co. all other employees	26,450,780	531	402	1.9	28	36
18	Sawmills	61,007,678	1,105	362	1.7	19	47
19	Boat building & repair	8,161,986	240	588	2.8	45	22
20	Aluminum products manufacturing	38,225,370	720	377	1.8	24	43
21	Electric power plants	41,993,603	773	368	1.8	22	45
22	Beer distributors	1,365,703	140	2,050	9.8	64	4
23	Creameries	13,086,256	325	497	2.4	37	31
24	Brick or clay product manufacturing	1,747,122	138	1,580	7.6	65	5
25	Garbage collection	7,957,189	233	586	2.8	47	23
	<b>Total Top 25 PI</b>	28,559					
	<b>TOTAL</b>	<b>67,044</b>					
	<b>Top 25 percent of total</b>	42.6%					
	<b>Highest Rate</b>						
	Temp help-admin staff	2,034,084	406	3,992	19.2	33	1
	<b>Highest Count</b>						
	Hospitals	585,440,283	7,754	265	1.3	1	72

NOTE 146 risk classes. Excludes those with less than 10 claims per year (60 total)

**Table 10. SELF Insured Employers Prevention Index (PI) Ranking for Compensable (Lost Time) Non-Traumatic Soft Tissue Musculoskeletal Disorders of the Neck & Upper Extremity, 1992-1997**

PI Rank	WIC	Hours	Count	Rate	Rate Ratio	Count Rank	Rate Rank
1	Parcel package delivery	60,887,719	910	299	3.9	5	13
2	Bus companies	40,603,596	630	310	4.0	8	11
3	Airline ground crew	26,605,794	426	320	4.1	16	8
4	Temp help-admin staff	2,034,084	199	1,957	25.4	29	1
5	Airlines flight crews	14,223,375	285	401	5.2	24	6
6	Schools, all other employees NOC	161,013,987	1,455	181	2.3	4	28
7	Trucking NOC	37,650,122	396	210	2.7	19	19
8	Cities, all other employees NOC	77,328,322	661	171	2.2	7	32
9	Wholesale stores NOC	33,246,968	321	193	2.5	23	22
10	Warehouses NOC	60,580,992	515	170	2.2	11	34
11	Aluminum product mfg	38,225,370	352	184	2.4	20	26
12	Supermarkets	243,794,141	1,800	148	1.9	3	43
13	Telephone co. all other employees	26,450,780	246	186	2.4	26	25
14	Newspaper publishing	8,272,172	125	302	3.9	41	12
15	Aluminum smelting	63,227,221	469	148	1.9	13	42
16	Boat building or repair NOC	8,161,986	115	282	3.7	43	15
17	Bakeries wholesale NOC	30,111,669	257	171	2.2	25	33
18	Creameries	13,086,256	131	200	2.6	39	21
19	Brick or clay product manufacturing	1,747,122	68	778	10.1	57	4
20	Sawmills	61,007,678	419	137	1.8	17	44
21	Fruit & vegetable packing	20,662,541	179	173	2.2	31	31
22	Garbage collection	7,957,189	94	236	3.1	49	17
23	Pulp or paper manufacturing	110,700,680	591	107	1.4	9	57
24	Hospitals	585,440,283	2,584	88	1.1	2	64
25	Food products manufacturing	86,917,731	470	108	1.4	12	56
<b>Total Top 25 PI</b>		13,698					
<b>TOTAL</b>		<b>24,851</b>					
<b>Top 25 percent of total</b>		<b>55.1%</b>					
<b>Highest Rate</b>							
	Temp help-admin staff	2,034,084	199	1,957	25.4	29	1
<b>Highest Count</b>							
	Aircraft manufacturing	1,013,948,165	3,142	62	0.8	1	86

NOTE 122 risk classes. Excludes those with less than 10 claims per year (60 total)

**Table 11. SELF Insured Employers Prevention Index (PI) Ranking for Compensable (Lost Time) Non-Traumatic Soft Tissue Musculoskeletal Disorders of the BACK, 1992-1997**

PI Rank	WIC	Hours	Count	Rate	Rate Ratio	Count Rank	Rate Rank
1	Parcel package delivery	60,887,719	1,515	498	5.7	5	7
2	Airline ground crew	26,605,794	554	417	4.8	14	8
3	Trucking NOC	37,650,122	620	329	3.8	10	13
4	Cities, all other employees NOC	77,328,322	982	254	2.9	6	21
5	Schools, all other employees NOC	161,013,987	1,781	221	2.5	3	24
6	Warehouses NOC	60,580,992	804	265	3.1	8	20
7	Wholesale stores NOC	33,246,968	498	300	3.4	16	16
8	Airlines flight crews	14,223,375	250	352	4.0	25	9
9	Bus companies	40,603,596	507	250	2.9	15	22
10	Temp help-admin staff	2,034,084	132	1,298	14.9	36	2
11	Ambulance services	4,018,167	134	667	7.7	35	4
12	Nursing homes	80,166,597	671	167	1.9	9	35
13	Janitorial services	16,304,647	227	278	3.2	26	19
14	Supermarkets	243,794,141	1,700	139	1.6	4	42
15	Fire fighters	26,830,788	278	207	2.4	23	27
16	Hospitals	585,440,283	3,881	132	1.5	1	50
17	Newspaper publishing	8,272,172	120	290	3.3	39	18
18	Beer distributors	1,365,703	71	1,040	12.0	55	3
19	Aluminum smelting	63,227,221	483	153	1.8	18	40
20	Electric power plants	41,993,603	324	154	1.8	22	38
21	Aluminum products manufacturing	38225370	265	139	1.6	24	43
22	Sawmills	61,007,678	413	135	1.6	20	47
23	Creameries	13,086,256	122	187	2.1	38	30
24	Counties, all other employees NOC	93,432,743	586	125	1.4	12	57
25	Fruit & vegetable packing	20,662,541	159	154	1.8	31	39
	<b>Total Top 25 PI</b>		17,077				
	<b>TOTAL</b>		<b>27,973</b>	<b>87</b>			
	<b>Top 25 percent of total</b>		61%				
	<b>Highest Rate</b>						
	Community service workers	415,297	36	1,734	20	77	1
	<b>Highest Count</b>						
	Hospitals	585,440,283	3,881	132	1.5	1	50

NOTE 122 risk classes. Excludes those with less than 10 claims per year (60 total)

**Table 12. SELF Insured Employers Prevention Index (PI) Ranking for Compensable (Lost Time) Non-Traumatic Soft Tissue Musculoskeletal Disorders of the Lower Extremity, 1992-1997**

PI Rank	WIC	Hours	Count	Rate	Rate Ratio	Count Rank	Rate Rank
1	Parcel package delivery	60,887,719	526	173	6.2	4	3
2	Bus companies	40,603,596	283	139	5.0	9	5
3	Fire fighters	26,830,788	200	149	5.3	13	4
4	Cities, all other employees NOC	77,328,322	336	87	3.1	7	14
5	Trucking NOC	37,650,122	210	112	4.0	12	10
6	Schools, all other employees NOC	161,013,987	540	67	2.4	3	20
7	Airline ground crew	26,605,794	158	119	4.2	19	7
8	Law enforcement officers	44,893,670	163	73	2.6	16	17
9	Airlines flight crews	14,223,375	78	110	3.9	26	11
10	Electric power plants	41,993,603	143	138	4.9	20	19
11	Warehouses NOC	60,580,992	184	68	2.4	15	26
12	Aluminum smelting	63,227,221	190	61	2.2	14	27
13	Counties, all other employees NOC	93,432,743	264	60	2.1	10	31
14	Sawmills	61,007,678	161	57	2.0	17	34
15	Pulp or paper manufacturing	110,700,680	216	53	1.9	11	41
16	Supermarkets	243,794,141	366	39	1.4	6	47
17	Hospitals	585,440,283	774	30	1.1	2	51
18	Wholesale stores NOC	33,246,968	96	26	0.9	24	30
19	Department stores	199,956,063	289	58	2.0	8	50
20	Telephone co. all other employees	26,450,780	73	29	1.0	27	32
	<b>Total Top 25 PI</b>	5,250					
	<b>TOTAL</b>	<b>9,039</b>					
	<b>Top 25 percent of total</b>	58.1%					
	<b>Highest Rate</b>	<b>28</b>					
	Temp help-admin staff	2,034,084	41	403	14.4	39	1
	<b>Highest Count</b>						
	Aircraft manufacturing	1,013,948,165	1,101	22	0.8	1	61

NOTE 77 risk classes. Excludes those with less than 10 claims per year (60 total)